

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection**

N168566588

FACILITY: TES Filer City Station		SRN / ID: N1685
LOCATION: 700 Mee Street, FILER CITY		DISTRICT: Cadillac
CITY: FILER CITY		COUNTY: MANISTEE
CONTACT: Austin Swiatlowski , EH&S Coordinator / IC&E Supervisor		ACTIVITY DATE: 02/14/2023
STAFF: Caryn Owens	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: On-site Inspection & Records Request		
RESOLVED COMPLAINTS:		

On Tuesday, February 14, 2023, Caryn Owens of the Department of Environment, Great Lakes, and Energy (EGLE) – Air Quality Division (AQD) conducted an on-site inspection of TES Filer City Station (TES) (SRN: N1685) located at 700 Mee Street in Filer City, Manistee County, Michigan. This facility is a power generating plant that uses multiple fuel types such as, coal, shredded tires, and wood in two separate stoker boilers that produce steam for a turbine to produce energy. The company produces approximately 60 megawatts of electricity per day, and additionally sends 50,000 pounds of steam to the adjacent Property for operational purposes.

The inspection was to determine compliance with the Renewable Operating Permit (ROP) MI-ROP-N1685-2015b. The facility is currently a major source of hazardous air pollutants (HAPs), and is subject to the following: New Source Performance Standards (NSPS) Standards of Performance for Electric Utility Steam Generating Units promulgated in 40 CFR Part 60 Subpart Da and EUACOALPETCKSTORAGE is subject to the NSPS Standards of Performance for Coal Preparation and Processing Plants promulgated in 40 CFR, Part 60, Subpart Y. The site is also subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP) for: Stationary Reciprocating Internal Combustion Engines in 40 CFR Part 63 Subpart ZZZZ (RICE MACT); and the NESHAP for Coal and Oil-Fired Electric Steam Utility Steam Generating Units promulgated in 40 CFR Part 63 Subparts A and UUUUU (MATS). Additionally, emission units EUBOILER01 and EUBOILER02 are subject to federal Compliance Assurance Monitoring (CAM) Rule in 40 CFR Part 64, and both boilers are also subject to the provisions of the Cross-State Air Pollution Rules (CSAPR). TES submitted a ROP Renewal Application to AQD and was received by the Cadillac District Office on October 7, 2019, a draft version of the ROP Renewal is in Supervisor review.

Summary:

The activities covered during the inspection and records review indicate the facility is in compliance with ROP MI-ROP-N1685-2015b. Specific on-site permit conditions that were reviewed are discussed below.

On-site Inspection:

There have not been any new changes to the facility since the previous AQD inspection. The facility is no longer receiving wood chips from the adjacent facility to the south, Packaging Corporation of America, and is now receiving virgin wood chips from other companies and stored on the northern portion of the site. The facility currently operates two spreader stoker boilers. Each boiler is rated at 384 MMBtu per hour heat input and is currently combusting coal, wood, and tire derived fuel (TDF). Each boiler is equipped with a dry scrubber to control sulfur dioxide and acid gas emissions, and a baghouse to control particulate matter. Each boiler system uses a separate unit and contains their own exit points which are vented to the atmosphere through a single 250-foot tall main stack, which assists the site for maintenance work on the boiler systems. The steam from the boilers is used to power the onsite turbine and sold to the adjacent company for process operations. Other sources of emissions at the facility are fugitive dust from the fuel storage piles and onsite truck traffic, and emissions from an emergency natural gas fired generator, and a diesel fired emergency fire pump. The emissions from these are uncontrolled.

During the inspection it was mostly cloudy, wind speeds about 10 to 15 miles per hour out of the south, and approximately 42 degrees Fahrenheit. The site was clean and well maintained, and no odors were present. I met with Austin Swiatlowski, the EH&S Coordinator and Chris Bosma, the Plant Operator, for a facility inspection who accompanied me through the facility to observe the permitted emission units and associated processes.

We began the inspection observing the hours ran on the emergency generator, and then went to the fire pump building. Afterwards we went to the control room to obtain plant records and observe the plant daily activity logs. Both boilers were operating during the inspection, with an electrical load of 64.8 Megawatts (MW) and 60.25 MW going to the grid. Additionally, we observed where the wood, coal, and TDF are fed into the boilers, and the reviewed the coal and wood storage pile visible emission records logbook. Then reviewed the ash silo visible emission records where we had a good overview of the fuel storage areas. During the inspection, I received copies of the Plant and Boiler Masters, and the current continuous emission monitoring system (CEMS) readouts.

The following is a summary of CEMS data received during the inspection.

	Boiler 1	Boiler 2
NOx	201.6 ppm 0.054 lb/MMBtu 150.3 pounds per hour (pph)	156.8 ppm 0.041 lb/MMBtu 108.1 pph
CO	44.1 ppm 0.008 lb/MMBtu 20.0 pph	61.5 ppm 0.008 lb/MMBtu 25.8 pph
CO2	9.7 ppm	10.4 ppm
SO2	16.5 ppm 0.006 lb/MMBtu 17.1 pph	10.7 ppm 0.004 lb/MMBtu 10.3 pph
SO2 Reduction %	96.78 %	97.34 %
Opacity	2.14 %	1.47 %
Coal Flow	20003 pph	19958 pph
Steam Flow	837.0 pph	1052.5 pph
Wood Waste Flow	6104 pph	6089 pph
TDF Flow	1771 pph	1884 pph

During the December 2020 Inspection, the outlet stack temperature of EUBOILER01 was 178.5 degrees Fahrenheit and the differential pressure (DP) was 0.92" wc, and the outlet stack temperature of EUBOILER02 was 176.7 degrees Fahrenheit and the DP was 1.01" wc. During the current inspection, the outlet stack temperature of EUBOILER01 was 172.0 degrees Fahrenheit and the DP was 0.95" wc, and the outlet stack temperature of EUBOILER02 was 172.4 degrees Fahrenheit and the DP was 0.81" wc. The operational parameters from previous inspection reports compared to current operational parameters appear to be similar.

TES claims the following exemptions at the facility from air permitting:

- EUSPACEHTRS-15, which includes ancillary natural gas space heaters each rated at 0.2 mmBtu/hr that meet exemption R 336.1282(2)(b)(i).
- **EUHOTWTRHTR, which is for ancillary natural gas hot water heater rated 0.199 mmBtu that meets exemption R 336.1282(2)(b)(i).**
- **EUHEATBLR, which is for ancillary natural gas hot water heating boiler rated 0.3 mmBtu that meets exemption R 336.1282(2)(b)(i).**
- EUPORTTORCH, which is for three portable torch cutters that meets exemption R 336.1285(j)(i).
- EU-ASHFURNACE, which is a unit that is direct-fired, and the combustion gases co-mingle with the process exhaust (ash conveyance air) that meets exemption R 336.1291.

On-site Permit Review:

Source-Wide Conditions: Includes all process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment. During the inspection, I observed the logbook in the control room that shows the maintenance area maintains records of dust suppressant applied to storage piles and roadways as well as dates in which the roadways and parking areas are swept.

During the inspection the roadways were clean, roads and areas around the plant were paved. Sprinklers were installed in the coal storage area which provides complete coverage. It should be noted that during the winter months the sprinklers are winterized, and the coal is sprayed with a dust suppressant call "frog skin" when it leaves the boat. The sprinklers were winterized on October 20, 2022. At the time of the inspection there were no visible emissions observed from the fuel storage piles, nor from the plant yard and roads.

TES has a consent order from the EPA that states TES cannot accept any deliveries of petroleum coke unless the facility installs a continuous Federal Equivalent Method (FEM) real-time particulate matter (PM-10) monitor and at least one FRM PM-10 filter-based monitor operating every third day at the facility. As of this date, TES has not installed the required PM-10 monitors and does not currently have petroleum coke stored at the site, nor currently use petroleum coke as fuel for the boilers.

EULIMESTORAGE: The lime storage and handling system consists of all lime handling and storage equipment including blowers, augers, conveyors, silos, and slurry tank up to the lime scrubbers that is controlled by a lime silo bin vent filter. The lime is used in the scrubbers for the boilers to reduce sulfur dioxide (SO₂) emissions and acid gases.

Particulate matter (PM) emissions from the lime storage silo are limited to 0.03 grains per dry standard cubic foot of exhaust gases. The visible emissions (VE) from the lime storage and handling system are limited to 5% opacity based upon a six-minute average. The facility shows compliance with the PM limit by conducting non-certified VE observations. If any visible emissions are observed, facility personnel record its presence and takes corrective actions. During the inspection, no VE's were observed from the lime storage and handling areas.

The bin vent filters have been installed and operating for many years, proper operation is verified through VE observations, and as previously stated, no VEs were observed during the inspection. However, based on review of the logbook and through discussions with Mr. Swiatlowski, on January 18, 2023, VEs were observed from the lime silo. According to the notes in the logbook, at approximately 16:00, there was white dust observed from the lime silo while they were loading. TES stopped the loading of the lime and had the silo hatch cleaned. Once cleaned they restarted lime loading, and no dust was observed. No other VEs were observed in the logbook while reviewing it.

Non-certified visible emission observations are required to be performed at least once each time the silo is being filled and stack testing may be required upon request of the AQD. The lime storage silo is filled approximately 5 times per week. The logbook located in the control room contained adequate documentation to demonstrate that the observations are being performed when the silo is being filled. Stack testing has not been requested by the AQD.

EUASHUNLOAD: The ash/by-products unloading system consists of all fly ash collection and transfer equipment conveyors, augers, piping, and silos along with an unloading baghouse. It also includes all bottom ash handling equipment including augers, conveyors and silos on EUBOILER01 and EUBOILER02. A rotary unloader adds moisture to the ash/by-products from the silo and loads ash/by-products into dump trucks through an enclosed tube. This emission unit is controlled by the ash silo bin vent filter, ash unloading baghouse, fly ash removal system baghouse, bottom ash system cyclone, and bottom ash removal system baghouse.

Similar to EULIMESTORAGE above, PM emissions from EUASHUNLOAD storage silo is limited to 0.03 grains per dry standard cubic foot of exhaust gases, and the VE limit from the entire ash/by-products unloading system is 5% opacity based upon a six-minute average. The facility shows compliance for the limits by conducting non-certified VE observations. If any visible emissions are observed, facility personnel records it and takes corrective actions. Based on the records I reviewed, VE checks indicated compliance with the 5% opacity limit.

During the inspection, the ash silo bin vent filter, ash unloading baghouse, fly ash removal system baghouse, bottom ash system cyclone, and bottom ash removal system baghouse appeared to be installed and operating properly. Proper operation is verified through VE observations, and during the inspection no VEs were observed. Additionally, no VEs were noted in the entries reviewed in the daily logbook.

Non-certified visible emission observations are required to be performed at least once each time the silo is being filled and stack testing may be required upon request of the AQD. The logbook is located in a room by the ash silo system. Based on review of the logbook, it appears the ash conditioning system is cleaned on average once a week. Stack testing has not been requested by the AQD.

EUEMERGEN: A 175 kW (275 HP) existing natural gas-fired emergency generator. EUEMERGEN is uncontrolled.

The maintenance records appeared to be complete. The facility chooses to change the oil on an annual basis, and the last oil change was July 11, 2022. The facility also inspects the belts, hoses and spark plugs on an annual basis, and replace if necessary. Maintenance is completed on a weekly basis and updated in a computerized preventative maintenance system. The maintenance records are attached to this report.

According to Mr. Bosma, EUEMERGEN is operated about 30 minutes per week. The facility inspects the EUEMERGEN on a weekly and annual basis in accordance with manufacturer's recommendations.

At the time of the inspection EUEMERGEN was equipped with a non-resettable hour meter and had operated for a total of 1218.0 hours since it was installed. There have been no malfunctions of EUEMERGEN.

EUFIREPUMP: A 139 kW (187 HP) existing diesel-fired emergency fire pump used to power the emergency fire water pump. EUFIREPUMP is uncontrolled.

The maintenance records appeared to be complete. The facility chooses to change the oil on an annual basis, and the last oil change was November 7, 2022. The facility also inspects the belts, hoses, and spark plugs on an annual basis, and replace if necessary. Maintenance is completed monthly and updated in a computerized preventative maintenance system. The maintenance records are attached to this report.

According to Mr. Bosma, EUFIREPUMP is operated about 30 minutes per month to test the engine. The facility inspects the EUFIREPUMP monthly in accordance with manufacturer's recommendations.

At the time of the inspection EUFIREPUMP was equipped with a non-resettable hour meter and had operated for a total of 631.0 hours since it was installed. There have been no malfunctions of EUFIREPUMP. Additionally, the diesel fuel contains a fill alarm to prevent overfilling the tank. The alarm is tested monthly when the engine is tested. The diesel fuel tank is filled approximately once per year.

FGBOILERS: This Flexible Group consists of EUBOILER01 and EUBOILER02 and their associated dry scrubbing system and baghouse used for control. Each boiler is a spreader-stoker firing configuration. The primary fuel is coal with the following supplemental fuels: wood, TDF, and natural gas. According to Mr. Swiatlowski, TES is hoping to move in the near future, to use only wood, TDF, and natural gas to fuel the boilers and eliminate their coal usage. The nominal heat input rating of each boiler is 384 MMBtu/hr including two low nitrogen oxide (NOx) natural gas-fired burners per boiler, with each burner rated at 100 MMBtu/hr.

Compliance with the SO₂, NO_x, and CO emissions from the FGBOILERS are demonstrated by CEMS. Emissions for PM and Total non-methane hydrocarbons (NMHC) are demonstrated by stack testing. Records of the emission limits are kept electronically and calculated through the source Data Acquisition System (DAS).

Opacity from the FGBOILERS is limited to 10% and is continuously recorded using a continuous opacity monitor system (COMS). Based on the records during the inspection, opacity was 2.14% for EUBOILER01 and 1.47% for EUBOILER02, well below the 10% emission limits.

PM emissions for FGBOILERS are limited to 0.03 pounds per million BTU (lb/MMBtu) heat input and 11.5 pounds per hour (pph). As previously stated, demonstration of compliance is performed via stack testing. Stack testing for ROP compliance was last performed July 26 and 27, 2022 and indicated that the PM emissions from EUBOILER01 were 0.0018 lb/MMBtu heat input and 0.72 pph. EUBOILER02 PM emissions were 0.0021 lb/MMBtu heat input and 0.88 pph.

Total non-methane hydrocarbons (NMHC) emissions from each boiler are limited to 4.6 pph. Based on the most recent stack test data from July 2022, indicated NMHC emissions were 0.39 pph from EUBOILER01 and 0.08 pph from EUBOILER02.

SO₂ emissions from each boiler are limited to 0.5 lb/MMBtu heat input (based upon a 30-day average) and 0.7 lb/MMBtu heat input (based upon a 24-hour daily average). SO₂ emissions are also limited to 6.45 tons per day and 1681.9 tons per 12-month rolling time period from both boilers combined. The facility implements CEMS to demonstrate compliance with the numerous emission limits. At the time of the inspection, the CEMS indicated SO₂ was at 0.006 lb/MMBtu in EUBOILER01. The CEMS indicated SO₂ was at 0.004 lb/MMBtu for EUBOILER02. Based on review of the Quarterly 2022 emission data, the highest reported SO₂ emissions from EUBOILER01 were 0.092 lb/MMBtu based on a 30-day rolling average, 0.323 lb/MMBtu based on a 24-hour rolling average, and 1.6 tons per day from both boilers combined. The highest reported SO₂ emissions from EUBOILER02 were 0.103 lb/MMBtu based on a 30-day rolling average, 0.141 lb/MMBtu based on a 24-hour rolling average. Based on records from February 1, 2022 through January 31, 2023 indicated the highest SO₂ emissions reported were 261.6 tons per year based on a 12-month rolling time period for both boilers combined. The SO₂ emissions were reported below the permitted emission limits.

NO_x emissions from each boiler are limited to 0.60 lb/MMBtu heat input, based upon a 30-day rolling average. NO_x emissions are also limited to 2,018 tons per 12-month rolling time period from both boilers combined. Similar to SO₂, the NO_x emissions are monitored and recorded via CEMS to demonstrate compliance with the emission limits. Records reviewed at the time of the inspection indicated NO_x emissions from EUBOILER01 were 0.054 lb/MMBtu and EUBOILER02 were 0.041 lb/MMBtu. Based on review of the Quarterly 2022 emission data, the highest reported NO_x emissions from EUBOILER01 were 0.42 lb/MMBtu based on a 30-day rolling average. The highest reported NO_x

emissions from EUBOILER02 were 0.54 lb/MMBtu based on a 30-day rolling average. Based on records from February 1, 2022 through January 31, 2023, the highest NOx emissions reported was 1204.0 tons per year based on a 12-month rolling time period for both boilers combined. The NOx emissions were reported below the permitted emission limits.

Carbon monoxide (CO) emissions from each boiler is limited to 0.3 lb/MMBtu heat input, based upon a 24-hour rolling average and 115.2 pph based upon a 24-hour rolling average. Total CO emission limits from both boilers combined are limited to 1,009.2 tons per 12-month rolling time period. As with SO₂ and NOx, CO emissions are also monitored and recorded by the CEMS. Records reviewed at the time of the inspection indicated CO emissions from EUBOILER01 were 0.008 lb/MMBtu and 20.0 pph. CO emissions from EUBOILER02 were 0.008 lb/MMBtu and 25.8 pph. Based on records from February 1, 2022 through January 31, 2023, the highest CO emissions were reported as 158.3 tons per year based on a 12-month rolling time period for both boilers combined. The CO emissions were reported below the permitted emission limits.

At the time of the inspection, charge rate of wood to the EUBOILER01 was 6,104 pph and EUBOILER02 was 6,089 pph based on the CEMS information. The facility cannot exceed 820,000 pounds (410 tons) per day.

The TDF feed rate is limited to 2 tons per hour, based upon a daily average per boiler. At the time of the inspection, TDF flow rate to EUBOILER01 was 1,771 pph and EUBOILER02 TDF flow rate was 1,884 pph.

Construction and demolition material (C/D material) and Petroleum coke were not used at the time of the inspection, nor was there evidence of storage of these two materials during the inspection.

The facility is also not allowed to operate the boilers unless the baghouses and scrubbers are installed and operating properly. Based on the low opacity readings, it can be assumed that the baghouses are operating properly. Based on the SO₂ reduction efficiency of greater than 90% it appears that the scrubbers are operating properly. As previously stated, during the inspection, EUBOILER01 had opacity of 2.14% and a SO₂ reduction of 96.78%, and EUBOILER02 had opacity of 1.47% and a SO₂ reduction of 97.34%.

CEMS and COMS are installed, operated and tested in accordance with the applicable requirements. This is verified through quarterly audits and annual Relative Accuracy Test Audits (RATAs). Recordkeeping is submitted quarterly with the Excess Emissions Reporting (EER).

The semi-annual reports and annual compliance reports for ROP certification were submitted to AQD in a timely manner. During the reporting period the permittee reported all monitoring and associated recordkeeping requirements. Exceedances of the limit when they occur are reported throughout the year in the quarterly EERs. In the 2nd Quarter there was 0.01% excess emissions reported for EUBOILER01 due to a switch, ID fan and broken boiler tube. The facility followed their maintenance plan. No other excess emissions were reported during the remainder of the year. Testing protocols and test reports were submitted within appropriate time frames. There were 12 incidents of CAM monitor downtime reported for FGBOILERS within the past year, and no CAM excursions or exceedances reported. AQD addressed the CAM monitor downtime in the semi-annual review.

Stack/Vent Restrictions for FGBOILERS have not changed from the previous inspection and appear to be accurate.

FGFUELSTORAGE: This Flexible Group consists of the coal and coal/petroleum coke piles (EU_{COALPETCKSTORAGE}), wood piles (EU_{WOODSTORAGE}), construction demolition material piles (EU_{CDMTSTORAGE}), as applicable, and all fuel handling equipment including augers, conveyors, and hopper up to EUBOILER01 and EUBOILER02. The wood handling area contains a baghouse for particulate control.

PM emissions from the EU_{WOODSTORAGE} area are limited to 0.10 pounds per 1,000 pounds of exhaust gases. The VE limit from EU_{COALPETCKSTORAGE} area is 5% opacity based upon a six-minute average. The methods of compliance for the limits are non-certified VE observations. If any visible emissions are observed, facility personnel record its presence and takes corrective actions. VE checks indicated compliance with the 5% opacity limit.

As mentioned previously, non-certified VE observations from the coal storage pile and the wood handling baghouse are performed at least once per day. The observations are noted in the daily operational logbook as well as any corrective actions, if performed. As previously stated, the C/D material storage and petroleum coke is included in the VE requirement but there is currently not any C/D or petroleum coke material on site.

As of the date of this report, AQD has not requested TES to determine compliance with 40 CFR Part 60 Subpart Y opacity standards, since there have not been VEs observed from FGFUELSTORAGE piles.

FGMATS: TES is subject to 40 CFR Part 63, Subpart UUUUU, also known as Mercury Air Toxic Standards (MATS) for existing coal fired electric utility steam generating unit(s) rated more than 25 MW. The specific Conditions on how TES will be following the MATS have not been incorporated into the ROP as of the date of this report. The ROP is in Renewal and will include the MATS Conditions. TES uses stack testing to show compliance with the mercury and PM emission limits, and they use the SO2 CEMS as a surrogate for hydrogen chloride (HCl). The most recent testing was performed on July 26 and 27, 2022 for PM and October and November 2022 for mercury. Testing was compliant with the Low Emitting Electrical Generating Unit (LEE) status for MATS. The source has submitted the following notifications and/or reports: An Initial Notification on April 12, 2012; A Notification of Compliance Status on July 15, 2016; the most recent MATS Semi-Annual Periodic Reports was received September 13, 2022; and a Tune-up last conducted June 23, 2021 for both Units. The notifications and Reports were submitted within appropriate time frames and reviewed by AQD at the time they were received.

NAME *Camp Owens*DATE 11-6-23SUPERVISOR *Shane Nixon*